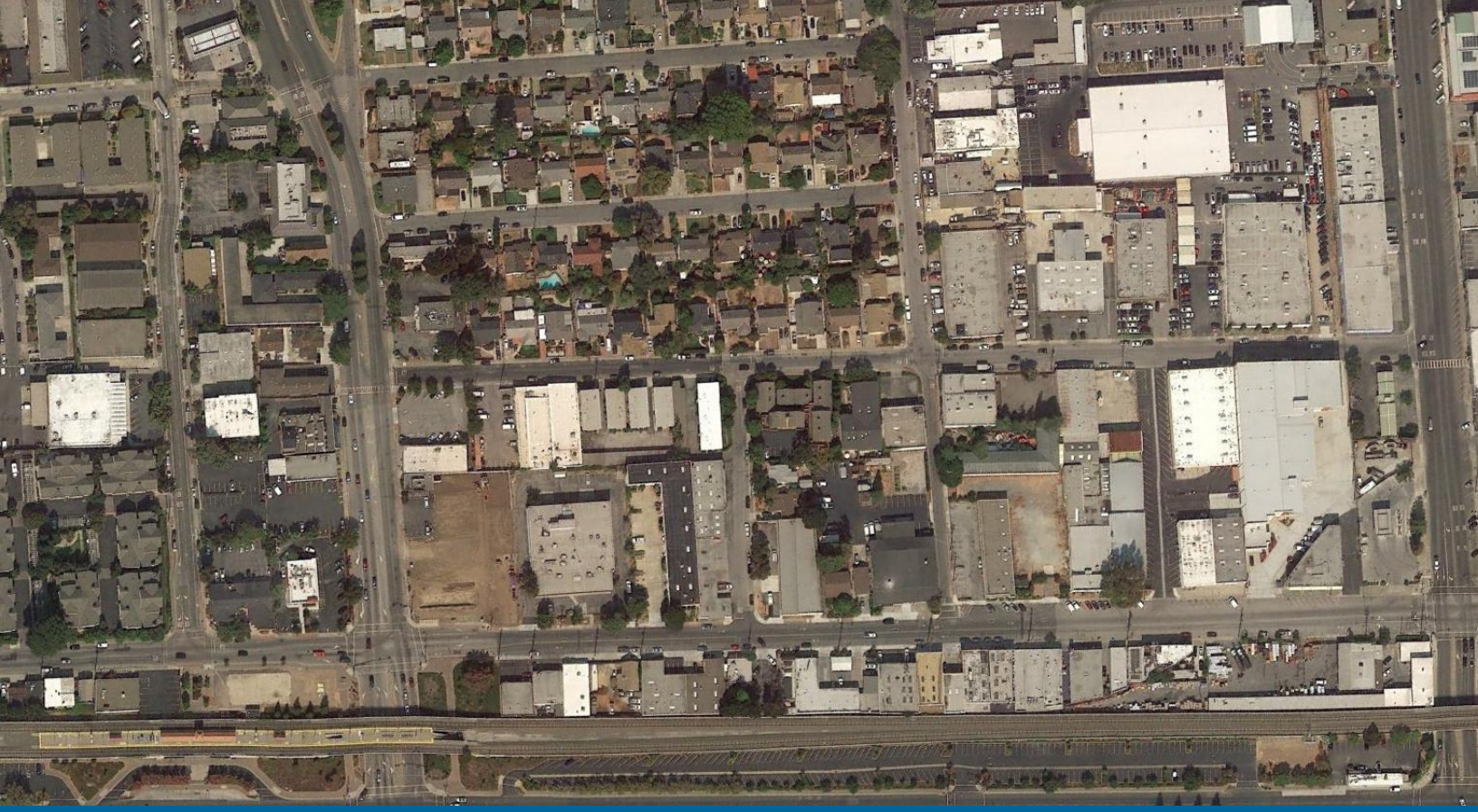

TDM Plan for 1325 Old County Road Belmont, CA

April 2019

NELSON NYGAARD

Image: Google Earth (2017)

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INTRODUCTION

Project Background and Context

Windy Hill Property Ventures (WHPV) is proposing the construction of 250 multi-family rental units in a four-story building with a footprint of 39,948 square feet ("the project"). Additionally, the project will include a community music school containing 1,352 square feet of gross floor area. The building would be located on a 91,427 square-foot site encompassing four adjacent parcels: 1325 Old County Road (046-031-070), 1304 Elmer Street (046-031-020), 1301 Old County Road (046-031-050), and a vacant lot on Old County Road (046-031-080).

The proposed parking for the project includes 259 spaces to be located in a below-grade structure.

The front edge of 1325 Old County Road is approximately a 1,200-foot walk from the platform of the Belmont Caltrain Station, a route which only requires crossing Old County Road and is less than 0.25 miles. The ADA accessible route to the station's platform is approximately 1,550 feet, or 0.3 miles.

From Belmont Station, Caltrain provides direct connections to San Francisco, San Jose, and many cities along the Peninsula. On a weekday, 23 northbound and 23 southbound trains stop at Belmont Station. Trains serving Belmont Station include local and limited-stop series; one may transfer to "Baby Bullet" trains at Redwood City, which is two stations away.

SamTrans bus service on nine routes is available within a half mile of the proposed project site (see Figure 1).

Figure 1 Existing Bus Service in Proximity to Project Site

Route Number	Destinations	Total Number of Buses on a Weekday	Walking Distance to Nearest Stop (miles)
60	Ralston Middle School	10	0.2
62	Carlmont High School	4	0.2
67	Ralston Middle School	10	0.2
68	Ralston Middle School	9	0.5
260	San Carlos Caltrain / College of San Mateo	42	0.2
397	San Francisco / SFO Airport / Palo Alto Transit Center	7	0.2
398	San Bruno BART / SFO Airport / Redwood City Transit Center	28	0.2
ECR	Daly City BART / Palo Alto Transit Center	146	0.2
KX	San Francisco / SFO Airport / Redwood City Transit Center	8	0.2

The applicable project zoning is Village Corridor Mixed Use as shown in the City of Belmont's adopted Belmont Village Specific Plan (BVSP). The project is also located within the Villages of Belmont Priority Development Area (PDA) as defined by Plan Bay Area.

TDM PROGRAM

A TDM program can encourage the project's residents to use the most environmentally-friendly and spatially-efficient mode possible for each trip, with an emphasis on transit, bicycling, walking, and shared rides.

The strategies outlined below are designed to work together to affect the project users' travel habits. Targeted programs strengthen the benefits of investments in bicycle and pedestrian infrastructure and the project site's proximity to major transit nodes by reinforcing awareness of these options, breaking down barriers to incorporating them in travel routines, and incentivizing habitual use.

Figure 2 Proposed TDM Program for Project

TDM Strategy	Description
Caltrain Go Pass provision	Provide unlimited Caltrain rides for all residents.
Bike share	The development will subsidize a bike share membership (dockless or docked bike share – depending on which systems are available in Belmont[1]) for each resident 18 years or older..
Carpool Ride-Matching Services	Tenant ride-matching services allows residents to easily be paired with potential carpool partners.
Information Boards/Kiosks	TDM information boards, kiosk, and hotline/online access to transportation information and coordinators.
Promotional Programs	Promotion and organization of events for the following programs: new tenant orientation packets on transportation alternatives; flyers, posters, brochures, and emails on commute alternatives; transportation fairs; Bike to Work Day, Spare the Air; Rideshare Week; trip planning assistance routes and maps.
On-site Transportation Coordinator Responsibility	On-site property management staff will provide a welcome package for new tenants, distribute Go Passes and other memberships, and additional information.
Monitoring program	By annually monitoring the TDM and parking program, the owner/management can adjust the strategies etc. in order to meet requirements, parking ratio, mode split, etc.
Unbundling parking	Pricing separately for all parking makes the rent more affordable to those who do not want a car while placing a premium on those who want guaranteed parking in a dense and transit-oriented environment. Based on a monthly fee within the range of $150 - $300 (depending on the number of parking spaces requested by a household and/or ease of access to the parking space).
Bicycle parking	The project is proposing a total of 264 bicycle parking spaces for residential and community use, including 214 long-term (Class I) and 50 short-term (Class II) bicycle parking spaces, which significantly exceeds the City's requirement.
Bicycle kitchen	A dedicated space for residents and employees of the development to get information about bicycling as well as tools and parts for bike repairs and maintenance. The kitchen

[1] LimeBike is the nearest provider on the Peninsula. Their dockless bike share pedal bikes cost $1/30 minutes, electric assist bikes and scooters cost $1 to unlock and $0.15/minute and a monthly membership costs $29.95/month. Low income and student rates are also available (https://www.li.me/help).

	(or resource center) may also be equipped with up-to-date bicycle maps, information on bicycle-related programming on-site or nearby, and other information for cyclists.
Transportation Management Association (TMA) participation	The project will belong to a TMA upon the institution of a TMA serving other Belmont locations.

TDM REQUIREMENTS AND ANALYSES

Municipal TDM Performance and Plan Requirements

With over 10 residential dwelling units, the project is subject to performance requirements laid out in the zoning ordinance amendment approved by the City of Belmont[2]. In the ordinance, the project's average vehicle miles travelled (VMT) must be less than the citywide average, and the single-occupant vehicle trip generation rates must be 15% below Institute of Transportation Engineers (ITE) standard rates[3]. These requirements are consistent with Belmont plans, as well as Plan Bay Area. The following model analyses (from URBEMIS and GreenTRIP) confirm the project's proposed TDM programs are compliant with the TDM performance requirements.

The project may obtain GreenTRIP Certification from TransForm prior to occupancy as an alternative to both performance requirements, as well as exemption from the ordinance's list of vehicle trip reduction measures.[4]

It is anticipated that GreenTRIP certification will be obtained for this project.

Trip Generation and VMT Analysis

URBEMIS (Analysis: Typical Daily Trips Generated)

An initial URBEMIS model was run for the project with regards to its residential and nonresidential planned uses. The URBEMIS model is used in this analysis to estimate an appropriate potential trip percent reduction impact from the trip generation analysis figures.[5]The California Air Resources Board initially developed URBEMIS (urban emissions model) to quantify and evaluate emissions from development projects in California, and Nelson\Nygaard has used URBEMIS to calculate the trip reduction effects of not just the project's proposed parking and TDM program, but also the project's location. A project in an urban area, for example, will generate fewer trips than the same project located close to a freeway interchange and surrounded by low-density subdivisions or office parks. Therefore, inputs for the URBEMIS model included figures specific to the location of the project within Belmont Village.

Outputs from the URBEMIS model are shown in Figure 3. All of the measures are complementary, and can only be considered in aggregate.

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[2] Section 31

[3] Daily trip generation rates are in the Draft Transportation Impact Analysis (Hexagon Transportation Consultants, Inc., March 23, 2018)

[4] Section 31.7.3 and 31.7.4

[5] The initial trip generation outputs are produced by Hexagon Transportation Consultants.

Figure 3 URBEMIS Model Outputs for Project

Category	Residential Component[6]	Nonresidential Component[7]	Project Total
ITE Typical Daily Trips	1,360	64	1,424
Total Reduction	-540	-12	-552
Reduction due to Local Context[8]	*-130*	*-5*	*-135*
Reduction due to Transportation System[9]	*-255*	*-7*	*-262*
Reduction due to Parking Measures[10]	*-120*	*0*	*-120*
Reduction due to Other TDM Measures[11]	*-35*	*0*	*-35*
Modelled Daily Trips	820	52	872
Percentage Change from ITE Typical Daily Trips	**-39.7%**	**-18.9%**	**-38.8%**

Based upon the project location and adjacency to transit, proposed parking supply and controls and included TDM measures, an approximately **38.8%** reduction in typical daily trips in anticipated to occur.

GreenTRIP Connect (Analysis: Annual VMT)

A GreenTRIP Connect model was run for the project site with regards to its planned residential use. The GreenTRIP Connect Parking Model was developed by the Center for Neighborhood Technology (CNT), a national nonprofit organization focused on developing research and modeling tools for city planning. The model's equations were developed and calibrated using parking demand data from 71 transit-oriented developments throughout the Bay Area.[12] The model is similar to those produced by CNT for King County, Washington state (RightSizeParking.org) and Washington, D.C. (ParkRightDC.org).

The model's calculations are based on local data and include several variables such as parking supply, parking price, average bedrooms per unit, presence of transit passes or car share memberships, availability of affordable units, and neighborhood variables (walkability, job density and frequency of transit). Due to the local variables used in it, the GreenTRIP model only applies in the San Francisco Bay Area.

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[6] 250 housing units are classified under ITE Land Use #221 (Mid-Rise Multifamily Housing).

[7] 1,352 square feet for an art/music school are classified under ITE Land Use #565 (Day Care Center).

[8] Includes residential density, the balance of jobs and housing, and affordable housing.

[9] Includes site proximity to high-capacity transit and local buses by frequency, bicycle and pedestrian network coverage, and intersection density.

[10] Includes parking supply and demand controls (such as allocation to residents and unbundling).

[11] Includes provisions of dedicated transportation coordination/marketing and incentives for bicycle riders, transit riders, carpoolers, and vanpoolers.

[12] http://www.transformca.org/GreenTRIP-Connect/Methodology.
http://www.transformca.org/sites/default/files/Parking%20Model%20July%202016.pdf

The inputs for the analysis and parameters are subject to modification, and the outputs for the 1325 Old County Road development are shown in Figure 4.

Figure 4 GreenTRIP Connect Model Outputs for Project

Project	Annual VMT	% Reduction in VMT from Baseline	Annual Metric Tons of Carbon Dioxide	Predicted Parking Demand
If Built in an Average Location in Belmont (Baseline)	2,642,689	--	1,326.59	269
If Built on Site Parcels	2,263,945	**14.3%**	1,136.52	254
Total With TDM Program and Affordable Housing On Parcel	1,957,421	**25.9%**	982.58	233

The annual vehicle-miles travelled (VMT) which would be generated by the project is lower than if the same project size were to be in an average location in the City of Belmont. When adding in TDM strategies and a provision of affordable housing, the draft model outputs generated an approximately **25.9%** reduction in the project's contributions to VMT compared to the average development in the City of Belmont.

OTHER CONSIDERATIONS

Trip Reduction Credit (C/CAG) Analysis

San Mateo City/County Association of Governments (C/CAG) has developed a list of TDM measures and associated trip reduction credits based on specific metrics for each of these measures. These guidelines apply to projects generating **more than 100 net new trips during either the AM or PM peak hour.**

Because the unmitigated project trip generation estimates a peak of 125 trips in the PM peak hour, **with a net increase of 65 trips compared to the existing land use**[13], the basic requirement for C/CAG trip reduction credits is ***not*** triggered.

The City of Belmont has an additional checklist of peak hour trip reduction credits for nonresidential projects. This particular project's performance with regards to this checklist is detailed in the TDM Plan Appendix.

[13] Updated Draft Transportation Impact Analysis, Hexagon Transportation Consultants, Inc., March, 2019.

On-Street Parking Impacts

Figure 5 Example of back-in angled parking on a suburban street with a Class II bicycle lane

Source: Nelson\Nygaard

The project, as proposed, will include the conversion of on-street parking from diagonal spaces along Old County Road to "back-in" angled spaces, a design which will enhance the visibility of bicyclists (see Figure 5). Additionally, 14 angled spaces along Karen Road will be reduced in number to create 12 parallel spaces and a dedicated loading space. The new spaces along Karen Road will be time-limited.

This conversion will reduce the supply of on-street parking. However, the total supply of 259 off-street spaces created by the proposed project-- which is greater than the minimum requirement (see Figure 6)-- will offset the difference.

Bicycle and Pedestrian Connectivity

A robust and safe bicycle and pedestrian network will reduce the tendency to take vehicles for short trips which can be covered by easily walking and biking. To that end, along streets immediately surrounding the 1325 Old County Road site, the BVSP[14] has proposed the following improvements:

- The designation of Elmer Street as a "pedestrian-focused route"
- Addition of Class III bicycle facilities (signed route with pavement markings) along Old County Road and O'Neill Avenue
- Consideration of a Class II bike lane (painted buffers) to be considered on Old County Road "where sufficient space exists"

[14] BVSP Figures 3-3, 3-4, and 3-5

- New bicycle and pedestrian undercrossing connecting Old County Road and El Camino Real at O'Neill Avenue

Parking Standards

The project's land use breakdown, paired with the BVSP parking standards as laid out in the zoning ordinance for the Belmont Village[15], are as follows:

Figure 6 Breakdown of Dwelling Units and Parking Requirements

Unit Type	Proposed Dwelling Units at 1325 Old County	Minimum Spaces Per Unit	Minimum Spaces Required
Studio	67	0.5	34
One-Bedroom	141	1	141
Two-Bedroom	42	1.5	63
Community Music School / Flex	1,352 square feet	2 per 1,000 square feet	2
Total	**250 dwelling units and 1,352 of nonresidential square feet**	**--**	**240**

Other points to note include:

- The maximum rate per unit (regardless of size) is 2.0 spaces plus 0.5 spaces for guest parking
- Credit for adjacent on-street parking applied to non-residential uses only.[16]

Adjacent on-street parking may be used as credit for the non-residential requirement, or two of the 240 required spaces.

The 258 proposed off-street parking spaces at 1325 Old County exceeds the minimum requirement by 18 spaces. Although the minimum rates in the BVSP aspire to be low compared to conventional measures of parking demand, multiple studies have found that minimum parking standards – even in urban environments -- "often result in an over-supply of parking,"[17] Reducing the parking supply by up to 50% of traditional ITE rates may contribute to a decrease in VMT and their associated externalities. Given that 1325 Old County is very proximate high-capacity transit service, a town center, and pedestrian and bicycle networks, the effectiveness of reducing parking supply increases.[18]

If the site is constructed with the 258 proposed parking spaces, there are potential remedies which could be enacted in response to monitoring, including a more robust TDM program and/or strategies which maximize utilization of the facility.

[15] Section 31.6; Table 31-4

[16] Section 31.6.2

[17] https://www.arb.ca.gov/cc/sb375/policies/pricing/parking_pricing_brief.pdf, p. 2

[18] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, p. 208

Bicycle Parking

As required by the City[19], the project must provide 2 short-term (Class II) bicycle parking spaces for the site and 13 long-term (Class I) bicycle parking spaces for the 250 multi-family residential units. The project is proposing a total of 288 bicycle parking spaces for residential and community use, including 216 long-term (Class I), 50 short-term (Class II) bicycle parking spaces, and 22 resident-only bicycle spaces (secure due to placement within the garage facility), which collectively exceeds the City's requirement.

IMPLEMENTATION AND MONITORING PLAN

As noted in the TDM program, WHPV shall have staff responsible for an annual monitoring of the TDM and parking program. This will ensure tracking the project's compliance with either a 15% reduction in peak hour vehicle trips from ITE standard rates, or obtaining regular GreenTRIP certification from TransForm (or a City-approved equivalent) over the life of the project.

Monitoring Plan

Per Appendix B of the Belmont Village Specific Plan (BVSP), all new developments subject to a "TDM program are required to show a 15 percent reduction in peak hour vehicle trips from ITE standard rates." This will require a monitoring program to determine the peak hour and evaluate the project's progress in in meeting the objective of achieving the required 15% reduction in vehicle trips.

The number of vehicle trips associated with the project will be tracked using an annual hose count until the 15% reduction is met. The hose count will be managed and overseen by the site-wide TDM coordinator. The purpose of the hose count is to determine how many vehicles are entering and exiting the site during the peak hour. The hose count will be conducted over a three-day period; Tuesday, Wednesday, and Thursday during a normal business week (i.e. no Federal or State holidays). Data on vehicle entries and exits will be collected at all entry and exit points to the site continuously over the three-day period. An average of the peak hour data for the three days will be taken to determine the number of peak hour vehicle trips. The hose count will be conducted every six months for a two-year period, with the initial hose count commencing within six months of the certificate of occupancy. Because it takes time for travel patterns to be established and for programmatic changes to take effect (if TDM plan must be adjusted), compliance with the TDM targets will not be determined until two years after the certificate of occupancy. At this time, a compliance report shall be submitted to the City evaluating the effectiveness of the TDM program along with the results of the counts. Reports will be submitted within seven business days of the completion of the counts. The target of 15% peak hour trip reduction, as required by the Belmont Village Specific Plan, will be measured using a baseline of 90 morning peak hour trips and 125 afternoon peak hour trips. The target, therefore, are resulting in fewer than or equal to 76.5 morning peak hour trips and 106.25 afternoon peak hour trips.

Ultimately, the performance expectations of the BVSP set incentives for the development to, in good faith, proactively reduce vehicular impacts onto the area's transportation network. If the project shows compliance, annual reports are required. If the project does not achieve targets as noted above, the following will occur:

[19] Section 31.6.8

- the City shall issue a written notice of non-compliance to the owner of the project;
- the notice shall indicate the cause for non-compliance; and,
- the project owner shall be given 30 days to provide a plan to come into compliance, for review and approval by the City's Public Works Department.

If, after the 30-day period, it is determined that the project remains out of compliance, the project will be required to modify the TDM program. Subsequently, to determine if the project is in compliance, a report shall be submitted to the City within six months of the determination, indicating that measures have been implemented (and/or the TDM program has been modified) the project would perform and report the results of counts within one year. This would continue until target rips are achieved. The revised TDM plan must be in accordance with City TDM policies and requirements in place at the time of nonconformance including timelines, remedies, and penalties.

APPENDIX

Trip Reduction Credit (City) Analysis for Non-Residential Developments

The City of Belmont's zoning ordinance amendment appendix includes Guidelines for Establishing Peak Hour Trip Credits for TDM Measures.[20] The majority of the measures listed are applicable to larger scale non-residential uses. However, four of the measures applicable to residential uses and included in the project are listed below. Based on review of both the ordinance and the proposed TDM program, at least 300 peak hour trips could be credited to the project.

Figure 7 Checklist of City TDM Measures and Peak Hour Trip Credits Applicable to Project

TDM Strategy	Peak Hour Trips Credited	Rationale
Secure bicycle storage	298	1 peak hour trip may be credited for "every 0.8 new bike lockers/racks installed and maintained," a figure which may be proportionally calculated as 1.25 peak hour trips for every 1 new secure bike locker. The planned capacity for long-term or "secure" spaces is 238 bicycle parking spaces. 238 times 1.25 is 298 peak hour trips (rounded up from a product of 297.5).
Vanpool program	TBD	Depends on the number of vanpools created through the ridematching program.
Commute Assistance Center	2	At least 2 listed features – an information rack and educational programs – will be included.
Transportation Management Association (TMA) participation	TBD	Peak hour trips are credited for every 200 employees working in the project. Therefore, while the project intends to belong to a TMA when such an entity is

[20] Appendix B

		created, credited peak hour trips are unlikely, given the predominantly residential land use of the project.

Project-Designated TDM Contact

A required[21] designated official contact responsible for the management and implementation of the TDM program will be identified prior to certificate of occupancy.

Site Plan

A required[22] site plan identifying the location of external and internal facilities related to the TDM program, will be furnished upon finalization of this plan.

[21] Section 31.7.5

[22] Ibid.